LITERATURE REVIEW

FOR

THE EVALUATION OF

THE KIT FOR NEW PARENTS

Submitted to:
First 5 California Children and Families Commission

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LITERATURE REVIEW

Introduction

Recent research underscores the importance of a healthy pregnancy and effective parenting practices during early childhood to prepare a strong foundation for children's healthy development and readiness for school (Shonkoff et al., 2000; Shore, 1997). Over the past few decades, there has been considerable public and private investment in developing parenting education programs to provide parents with information and skills to help care for their children. These parenting programs utilize a variety of approaches—from parenting education materials to parenting classes and home visiting programs—and cover a variety of topics including pregnancy, child development and behavior, maternal and child health, relationships and communication skills, discipline, balancing work and family, and accessing local resources.

The First 5 California Children and Families Commission *Kit for New Parents* is a new model for materials-based parenting education. The Kit has several distinctive features:

- It uses multiple media with educational videos, written materials, and a baby book.
- It addresses a comprehensive set of parenting issues including prenatal care, early childhood development, nutrition, health, safety, and child care.
- It is available in English and Spanish and will be adapted to Chinese, Vietnamese and Korean.
- It is a large-scale intervention with intended universal distribution to California's 500,000 new parents each year through prenatal care, delivery hospitals, home visiting, and other programs.
- It was evaluated in a longitudinal, quasi-experimental study examining parents' use of and satisfaction with the Kit, and its impact on parenting knowledge, attitudes and practices over a 14-month period.

As a new model for parenting education, the Kit can be better understood in comparison with the theoretical models, methods, and outcomes of other parenting education interventions. Although parenting education programs can have a wide range of effects on parenting knowledge and practices as well as outcomes for child health and development, the primary focus of this literature review is on how the educational interventions affect parenting knowledge. This document is intended to serve as a background literature review for the report, *Final Results of the Kit for New Parents Evaluation* (UC Berkeley, 2003).

The objectives of this literature review are to:

- present a brief overview of the major types of parenting education programs;
- discuss key principles that contribute to the success of parenting education programs, and demonstrate how they are supported by theoretical models from education, health, and other related fields; and
- review studies of parenting education interventions and their impact on parents' knowledge.

The Importance of Parenting Education

Parents are the key to promoting young children's healthy development. Parents are their children's primary caregivers and teachers—they are responsible for ensuring that their children receive adequate nurturing, developmental stimulation and nutrition; that their home and child care environments are safe; and that their children's health care and immunizations are up-to-date. Parents also play a key role in shaping their child's self-confidence, ability to form relationships, values, motivation to learn, and problem-solving skills (Shonkoff et al., 2000; Shore, 1997; Brazelton, 1992).

Research has identified key parenting practices that are effective in promoting young children's health, development, and safety. However, studies show that a significant proportion of parents do not know or follow these practices, leaving many children at risk for health and developmental problems. Studies also indicate that ethnic minority families are often at greatest risk. For example:

- Although widespread public information has described the hazards of children's prenatal and childhood exposure to smoke, 23% of all adults currently smoke, including 12% of pregnant women (NCHS, 2001). Forty-three percent of children age 2 months to 11 years lives in a household with at least one smoker (Pirkle et al., 1996).

- Despite evidence of the nutritional and disease-prevention benefits of infant breastfeeding, and recommendations to breastfeed for one year, only 67% of women breastfeed at all (including only 50% of African Americans), and only 29% breastfeed for at least 6 months (including only 20% of African Americans)(NCHS, 2001).

- Although putting infants to sleep on their backs has been shown to cut the risk of Sudden Infant Death Syndrome by nearly one-half (American Academy of Pediatrics, 2000), 20% of parents still put their babies to sleep on their stomachs. Rates of unsafe sleeping position are significantly higher (32%) among African American families (NCHS, 2001).

- Despite recent findings that reading to young children helps develop their language capabilities and readiness for school, only 39% of parents of children under age 3 read to their children daily (Young et al, 1998).

While early childhood professionals clearly recognize the need for comprehensive parenting education to promote healthy practices, many parents recognize this need as well. Parents want to provide their children the best start in life. Throughout history and around the world, parents have always relied on information and support from their family and community to help raise their children. But many recent social changes—including increased mobility, the decline of extended family networks, the increase in working parents and child care, children's increased exposure television and other media, and concerns about teenage pregnancy, substance abuse and violence—have made parents aware of the need for more formalized parenting education. Despite the widespread availability of parenting information from relatives, friends, health care and child care providers, television, radio, books, newspapers, magazines, and the Internet, recent surveys show that parents believe it is harder

to raise children today; and that they need more parenting advice (Carter, 1996; Commonwealth Fund, 1996; Zero to Three, 1997; Halfon et al., 2002).

Parents generally feel satisfied with the information they receive from their health care providers about their children's physical development, but report needing more information about their children's behavior, and their cognitive and emotional development (Young et al., 1998). The Commonwealth Survey of Parents of Young Children (1996) found that 40% of parents reported needing more information on discipline. A California survey found that 87% of families felt knowledgeable about what to do during their children's first three years to help them learn and do well in school, but the confidence levels were lower for Asian Pacific Islanders (77%), and Spanish-speaking Hispanic families (57%) (GMMB, 2001).

With the recent emphasis on the importance of the first few years in children's development, many parents feel anxious about their ability to provide adequate stimulation for their children. In addition to information, parents need emotional support and to feel reassured that their child is doing okay and that they are parenting well (Carter, 1996). First-time parents, teen parents, single parents, and low-income parents cite the greatest need for information and support (Zero to Three, 1997).

A recent national parent focus group study found that parents identified "parent education" as their top agenda item for government action and said they needed help accessing educational programs and resources (Hart, 2001). While the Commonwealth Survey (1996) found that 71% of parents had attended childbirth classes, only 34% had attended parenting classes; and parents with lower educational backgrounds, single parents and ethnic minorities were least likely to have attended.

In conclusion, there is clearly a great need and strong demand for parenting education. The challenge for First 5 is to identify the best interventions to achieve this goal. In particular, it is important to know whether theoretical models and past research findings suggest that the *Kit for New Parents* is likely to be a valuable statewide investment

Types of Parenting Education Programs

Parenting education programs are generally defined as programs that provide parents with information and skills to enhance parents' competency and confidence to care for their children and promote their healthy development (Carter, 1996; Zepeda & Morales, 2001; Cowan et al., 1998). The field of parenting education has blossomed over the past 50 years. During this period, program models have expanded from child health and development experts providing information to parents, primarily mothers, to community organizations providing a broad range of information and support services to families. As a result, parenting programs may define themselves as "parent education," "parent training," "parent support," "family life education," or "family support" (Carter, 1996; Zepeda & Morales, 2001; Cowan et al., 1998).

Currently, there are tens of thousands of parenting programs across the country (Carter, 1996). Many parenting programs share certain core values: they build on the strengths of the family, support positive relationships among family members, and are sensitive to the family's culture (Carter, 1996; Cowan et al., 1998; Zepeda & Morales, 2001).
Most programs provide education on one or more parenting topics including child development and behavior, discipline, maternal and child health, adult/parent development, balancing work and family, relationships and communication skills, finding and using resources, and empowerment/advocacy.

In other respects, however, parenting programs vary widely. Many parenting education programs are embedded in larger programs that offer a broad array of other services. Some of the different program characteristics include:

- *Size of program*: From small, local community-based programs to large, state and national programs.
- *Program Provider:* Public or private organizations; may be under the auspices of education (e.g., adult literacy, preschool/school readiness, disabilities services), health care (e.g., hospital childbirth preparation, public health department maternal-child health services), social services (e.g., teen parenting, child protective services, substance abuse), or other programs (See Appendix A: Universe of Parent Education). Program staff include professionals (e.g., teachers, social workers, mental health professionals, nurses, health educators, and doctors), trained para-professionals, and volunteers.
- *Program clients:* Services may be universally available or target a special population (e.g., by age of child, ethnic group, income, geographic area, age or gender of parent, or special needs of the child/family). The program may be voluntary or mandatory (e.g. for parents involved with child protective services).
- *Type of services*: Includes educational materials, workshops/classes, discussion/support groups, child development programs, family activities, counseling and crisis intervention, case management, home visits, health care, and referrals to resources.
- *Location of services:* May be provided in a center or at home visits.
- *Number of hours and duration of services:* From a single, brief encounter to multiple, extended classes, counseling sessions or home visits over several years.

- *Cost of programs:* Typically, costs range from less than $100 per family for programs that provide only educational materials to $1,600-$16,000 per family/year for programs that provide additional support services (St. Pierre, 1997).

Theoretical Models Related to Parenting Education

In the preceding section, we reviewed scientific studies of parenting education. Over time, the outcomes of these studies influence the evolution of parenting programs. In addition, theoretical models from many fields contribute greatly to both the development of parenting education approaches and also to our understanding of key factors that are linked to program effectiveness. In this section, we review theoretical models drawn from the fields of parenting and early childhood education, adult education, health education, psychology, neuroscience, and communications that relate to parenting education interventions.

From our review of these models, we have identified several overarching principles that may help to explain why some educational interventions are effective in improving parenting knowledge while others are not. Effective parenting education:

1. builds on parents' needs, interests and learning styles;
2. tailors the educational messages and methods to engage and motivate parents; and
3. works within parents' social environment to support learning and positive parenting practices over time.

While each of the above principles has a specific focus, some overlap exists as the different principles and theoretical models support each other.

The following discussion describes how each of these key is supported by theoretical models or factors drawn from various fields of study.

1. Effective parenting education builds on parents' needs, interests and learning styles.

Parents' needs and interests

While every parent is unique, there are many commonalities in the experience of parenthood. Galinsky (1987) defines six stages of parenthood that correspond to the age and stage of one's child: 1) image-making (during pregnancy), 2) nurturing (birth to 18-24 months), 3) authority (2-5 years), 4) interpretative (school age), 5) interdependent (adolescent), 6) departure (adult). Each stage of parenthood is characterized by particular experiences, feelings, and tasks for the parent's learning and growth.

The period from pregnancy through early childhood—the image-making, nurturing, and authority stages—offers a special window of opportunity for parents to learn, grow and change (Galinsky, 1987). New parents tend to be anxious, eager, hopeful, open, and motivated to learn so they can make a positive, long-lasting impact on their child's development, health and well-being. During the pregnancy, parents dream of the child they want and the parent they want to be; and they prepare for their new role by considering images of their own parents and other parents they have observed, images they have seen on television and the movies, and what they have read. During their child's first two years of life, parents are intensely involved with caring for their child's needs—the frequent feedings, diaper changes, crying spells, sleepless nights, doctor visits, etc.—and they begin to temper their previous images with the day-to-day realities of parenthood. During the child's preschool years, parents are challenged to separate a bit from their child, understand their child's temperament, and decide where and how to set limits to promote their child's healthy and safe development.

Interwoven with the general parenting issues, each parent has unique experiences and learning needs based on a complex interplay between the child's characteristics and the parent's own cultural background, developmental history, personality, attitudes, health, marital and family situation, social network, and work status (Belsky, 1984; Cowan et al., 1998). Some parents—particularly teens and first-time parents—may have limited experience with children and may need detailed information and instruction on every aspect of caring for their baby from feeding to diapering, bathing, playing, calming, sleeping, etc. Other parents may have considerable experience and resources, and may only need information on caring for their child's special needs such as infant colic, spitting up feedings, or sleep problems. The key for parenting education is to identify and begin with the parent's needs (Brazelton, 1992; Galinsky, 1997; Cowan et al., 1998; Halfon et al., 2002).

Adults' learning styles

Andragogy (Knowles, 1980) is a theory of learning in adults, and explains how adults may learn differently from children. This model identifies distinctive characteristics of adult learners:

- they have had significant life experiences;
- they are motivated to learn;
- they desire information that is practical and relevant to their lives;
- they are oriented to solving problems; and
- they are self-directed and can seek out their own learning experiences (Knowles, 1980; Caffarella & Barnett, 1994; Merriam, 2001).

Adult learning theory also states that differences in an individual's physical, psychological, social, and cultural characteristics influence one's particular learning interests, motivation to learn, and best style of learning. In fact, these principles of adult learning have been shown to be valid across a broad spectrum of socio-economic, ethnic, and educational backgrounds; and in both classroom, community-based, and home-based educational settings (Merriam, 2001). For example, Freire explains how people living in poverty can engage in a community-based learning process that can empower them to improve their economic and political circumstances. In this learning process, community members work together to gain a greater understanding of their living situations and find solutions to the day-to-day problems they face (Freire, 1973).

In all, adult education should build on the learner's previous experience and knowledge, address practical issues or questions the learner has, be relevant to her daily life, and be experiential (Merriam, 2001). For example, for a first-time mother who wants to breastfeed her baby, a valuable educational experience might be a discussion with a nurse or peer educator supporting her decision and reinforcing the health benefits of breastfeeding; observing another nursing mother or viewing a video demonstrating the different breastfeeding positions; and practicing the techniques with her baby while supervised and supported by the instructor.

The *Constructivist* Theory (Bruner, 1996) describes how learners build knowledge and skills upon their previous knowledge and experiences. When a learner is presented new information, he considers it relative to his previous knowledge and beliefs, and constructs or reconfigures his knowledge and beliefs accordingly (Merriam, 2001). Adults tend to have a

greater appreciation for the complexity of issues, to be more critical of new information, and to be more reflective, comparing the new information with their own attitudes and experiences (Caffarella & Barnett, 1994). In fact, previous life experiences can both aid and impede learning (Merriam, 2001). For example, when parenting education addresses discipline, a parent's experience of having been harshly disciplined as a child can either make him more interested in learning alternative discipline methods or make him resist alternatives because he "turned out okay" with the harsh discipline.

Adult learning theory also distinguishes between informational learning and transformational learning (Merriam, 2001). While informational learning helps adults acquire facts, transformational learning involves a change in the way in which the individual views himself and his world. Parenthood is a transformative experience, if parents are willing to learn, grow and change (Galinsky, 1987; Brazelton, 1992; Cowan et al, 1998). Galinsky states, "As adults, we continue this lifelong process of imagining what lies ahead. At transitional times when we are about to embark on something new—pregnancy for example—our thoughts are filled with images…I see growth occurring at the points when parents modify an image to be more consistent with reality, or modify their own behavior to reach toward an image" (Galinsky, 1987, p 8). The transformational nature of pregnancy and parenthood is also shaped by one's cultural beliefs about the physical, emotional and social nature of the experience (Harris et al, 1981).

Theories of health education describe the process through which an individual can adopt healthier attitudes and behaviors. According to the *Health Belief Model,* change begins when an individual anticipates and values a particular outcome or "expectancy," such as having a healthy pregnancy and baby, or avoiding having a low birth-weight baby (Glanz et al., 1997). The *Transtheoretical Model* or *Stages of Change* model (Prochaska, 1997) describes the process of behavior change as a progression through five stages over time from pre-contemplation to contemplation, preparation, action, and maintenance. For example, if a pregnant woman smokes cigarettes but is concerned about having a healthy baby, information on the hazards of smoking can help her start thinking about quitting; and self-reevaluation can help her weigh the advantages and disadvantages and decide to quit. Then, making a commitment and a plan can help her take the necessary actions. Finally, seeking out healthy substitutes to smoking (such as exercise), rewards, supportive relationships, and non-smoking environments can help her refrain from smoking and improve her baby's health.

2. Effective parenting education tailors the educational messages and methods to engage and motivate parents.

Tailoring the message for parents

Every day, parents are bombarded with many messages—do this, don't do that, buy this, go there, vote for that. With this confusing backdrop, only educational messages that are clear and relevant engage parents' attention and interest. Parents may wonder, "Does that message really apply to me?"

A substantial body of literature supports the conclusion that people are more likely to learn from educational messages relevant when they are tailored to their characteristics, concerns and needs (Powell et al., 1990; Fuligni & Brooks-Gunn, 2000; Baum, 2000; Guinn et al, 2002; Neuhauser & Kreps, 2003). To create appropriate educational messages and materials,

educators must first assess the target audience's values, attitudes and needs (Glanz et al., 1997). Involving intended users in developing and field testing the materials helps ensure that the messages and materials are relevant and effective (Neuhauser, 2001). Tailored educational messages are presented in families' native languages and are culturally appropriate, recognizing families' diverse backgrounds, values, beliefs, traditions, approaches to child rearing, resources, and barriers. Visual images, interviews, and demonstrations should include parents and children from different ethnic backgrounds and subgroups, ages, genders, and disabilities so families can "see themselves" in the message.

A growing body of literature highlights differences in central values of different ethnic groups. For example, studies show that "familiarism"—the strong attachment and identification of individuals with their nuclear and extended families—is a key Hispanic cultural value (Sabogal et al., 1987). Other studies suggest that African Americans highly value verbal communication (Jones, 1986), and Asian Americans value group cohesiveness and deference to authority (Sue & Morisha, 1982). These findings can help to tailor the design of parenting interventions. For example, Marin et al. (1990) state that smoking messages are likely to be more effective with Hispanics if they emphasize family-centered rather than individual reasons to stop smoking.

Messages can be made even more relevant by tailoring them to the individual's specific needs. The *Elaboration Likelihood Model* (developed by Petty and Caciopppo) explains how it can be highly effective to combine culturally-appropriate educational materials with individualized instruction or counseling, e.g., by a home visitor or health educator (DiClemente et al, 2002). The provider can effectively tailor the message to the individual's concerns about a particular health behavior, such as smoking, and his stage of behavioral change (Prochaska, 1997; Glanz et al., 1997). In parenting education, interventions that focus on specific parenting practices (e.g., feeding, sleeping, or discipline) and related cultural beliefs and barriers can be very effective (Marin et al., 1990; Cousins et al., 1993). In addition, parent educators with similar backgrounds and experiences can offer practical tips ("cognitive modeling") and demonstrations ("behavioral modeling") that are applicable to parents' daily lives. For some parents, peer instructors may have more real-life credibility and can help them feel understood and accepted because they "know where I'm coming from" (Merriam, 2001; Glanz et al., 1997; DiClemente et al., 2002).

Engaging parents in learning

Individuals have different learning styles or preferred ways of taking in information (e.g., visual, verbal or tactile) and processing information (e.g., active or reflective) (Caffarella & Barnett, 1994; Merriam, 2001). Different educational formats appeal to different learning styles and offer distinct advantages for conveying information: written materials can provide large quantities of information; videotapes can model behaviors; and interactive experiences can develop skills. In fact, research shows that peoples' memory of pictures is generally better than their memory of words (Bransford et al., 2000). Multimedia educational packages or presentations can combine the effectiveness of all the different formats, appeal to a range of learning styles, engage participants, and reinforce the same messages in different ways (Brown, 1999).

Neurological studies show that memory is enhanced when learning experiences engage multiple brain functions such as vision, hearing, speaking, movement, and interpersonal

relationships (Jensen, 1998). Researchers have found that learning experiences are more effective when they involve: 1) a challenging experience in which the learner wrestles with new ideas, attitudes, and problem-solving techniques; and 2) an interactive experience in which the learner receives feedback to reinforce new ideas and behaviors (Neuhauser & Kreps, 2003; Jensen, 1998; Street & Rimal, 1997). This may explain why intervention studies are finding synergistic effects when a learning experience appeals to one's "head, heart and hands;" or in other words, the intervention provides cognitive information, emotional engagement, and a skill-building activity.

Cognitive scientists have found that the brain is most effective in processing learning experiences that are varied and paced (Jensen, 1998; Bransford et al, 2000). The brain can focus either on taking in new information (external stimuli) or creating meaning, memory, and learning from the new information (internal stimuli). Learning is acquired most effectively when new information is provided over short periods of time (i.e., 10-20 minutes) and interspersed with time for reflection, discussion or practice. In addition, attention and learning are more likely when the learner has choices regarding the resources, content, timing, and learning environment (Jensen, 1998; Bransford et al., 2000; Street & Rimal, 1997). Parents typically have busy daily lives balancing work and family, and may need flexible learning experiences to fit their constraints with child care, time, finances, and transportation.

In addition to the content and format of educational materials, *how* the information is received—either interpersonally or through a "mediated" source (such as television, radio, internet, or printed media)—can also contribute to parents' degree of engagement and learning. Cultural differences are an important factor in the effectiveness of educational interventions. For example, Marin (1990) reports that low-acculturated Hispanics tend to value *personalismo,* receiving information through interpersonal sources, either professionals or non-professionals (e.g., family and friends) that they can trust.

Motivating parents

People are motivated to learn when they have compelling goals for learning, they are confident in their ability to learn, and they have positive emotions associated with the learning experience (Jensen, 1998; Bransford et al, 2000; Merriam, 2001). Many educational theories highlight the central importance of self-efficacy and perceptions of control for learning and behavior change (Merriam, 2001; Jensen, 1998; Glanz et al., 1997; DiClemente, 2002; Bull et al., 2001). Self-efficacy is an individual's confidence and/or competence in his ability to learn, reach his goals, or adopt a particular practice despite the challenges. In the *Health Belief Model*, a person must believe that his current behavioral patterns are unhealthy, that specific behavioral change will be beneficial, and that he can overcome barriers to make the change (Glanz et al., 1997).

The theory of *Intrinsic Motivation* (Deci, 1995) explains that when an individual has a personal desire to learn for himself rather than for others, it dramatically increases the rate and quality of learning. The individual must consider the content of the educational material relevant. Intrinsic motivation naturally emerges from the innate human need to feel competent and in charge of one's life. Three factors enhance intrinsic motivation and learning in educational situations: (1) choice about what and when to study, (2) an optimal level of challenge of the task, and (3) positive feedback regarding one's competence.

Studies have found that positive emotions and attitudes greatly enhance learning. In fact, positive emotions during the learning experience have been found to activate attention and processing of information; and positive emotions immediately after the learning experience have been found to consolidate memory and learning (Harris et al., 1981; Jensen, 1998; Bransford et al., 2000; Merriam, 2001). Whereas earlier behavioral theories assumed that external rewards were necessary to reinforce learning, neuroscientists currently believe that the brain makes its own rewards through the brain's neurochemical system that responds positively to engaging activities such as entertainment, affection and achievement (Jensen, 1998; Bransford, 2000). The midbrain's amygdala, the seat of emotions, sends neural connections throughout the brain, helping to activate attention, thinking, decision-making, and actions. One author states, "We literally must feel something is true before it can be believed and learned" (Hill, 2001, p. 79). Another says, "Our logical side says, 'set a goal.' But only our emotions get us passionate enough even to care enough to act on that goal" (Jensen, 1998, p. 72). Dede & Fontana (1995) add that for learning to result in behavior change, communication must "touch the emotions" of people in ways that relate to their daily lives.

On the other hand, stress and depression have been found to inhibit the brain's ability to encode memory (Hill, 2001; Jensen, 1998). Therefore, learning experiences that generate positive emotions and reduce stress (e.g., support groups, games, physical activities, entertaining presentations, and celebrations) can be very effective (Jensen, 1998).

Understanding different rates of learning: The possible effects of socio-economic status, education, and acculturation

Research has documented serious "knowledge gaps" between people from higher vs. lower socioeconomic populations (Freimuth, 1990). Some educators have hypothesized that the generally higher educational background and greater degree of acculturation among people from higher-income backgrounds contributes to a "differential learning rate" or faster rate of learning than for people from lower socio-economic backgrounds (Trichenor, Donohue, & Olien, 1970). One implication of this theory is that educational interventions would offer more benefit to the more educated, higher income population and might actually *increase* the knowledge gaps and disparities. However, recent studies have shown that educational interventions can, in fact, reduce knowledge gaps (Freimuth, 1990; Alcalay & Bell, 1996). An emerging hypothesis is that learning may be more influenced by an individual's motivation and interest than by educational background, acculturation, or socio-economic factors. Viswanath et al. (1993) believe that, at a minimum, motivation may moderate the effects of education on knowledge gain. Some studies suggest that when information is culturally adapted, it may actually *favor* learning among lower-educated and lower-acculturated groups (Bell & Alcalay, 1997). This would suggest that those with the greatest need could benefit the most from carefully-designed educational interventions.

Another traditional notion has been that lower-educated, lower-acculturated groups require information presented on a single topic, rather than more comprehensive materials on a range of topics. However, there is some evidence that Hispanics may find irrelevant or resent educational materials that are directed at only one issue, such as smoking, to the exclusion of other issues (Valdez, Alcalay, & Stokes, 1991). Bell & Alcalay (1997) suggest that resources addressing issues as an "interconnected constellation" will have a better chance of being used and retained by less-acculturated Hispanics.

Currently, considerable attention is focused on the issue of "functional literacy," the degree to which people can obtain, understand and act upon information. In the year 2000 in the United States, an estimated 90 million people—approximately one-half of all adults—had a functional reading level of 8th grade or less (Staley, 2003). Parents from ethnic and racial minority communities, especially those for whom English is a second language, are more likely to have lower literacy skills. Unfortunately, many educational materials are written at a high-school (or greater) literacy level. Improving our understanding of and attention to literacy is crucial in designing effective parenting education.

In all, there is a growing body of research that examines the effectiveness of educational interventions in relationship to their appropriateness for the users' educational background, literacy level, acculturation, disability and socio-economic status. The results show that when appropriate materials are used, these demographic characteristics are not inherent barriers to learning. Indeed, these factors may even enhance learning. Such studies are contributing to the development of new theoretical models of adult learning.

3. Effective parenting education works within parents' social environment to support learning and effective parenting practices over time.

The social context of parenthood

Many different fields including adult psychology, family systems and sociology explore the process of how an individual develops his or her identity as a parent and defines his or her role within the context of the family and community. In most societies, becoming a parent and taking on child-rearing responsibilities is a major path toward initiation into adulthood (Galinsky, 1987).

Situated Learning Theory explains how learning is not just an individual experience, but a socially-mediated experience that involves negotiating the meaning of the experience with members of one's family and community (Lave & Wenger, 1993). Bunton, Murphy & Bennett (1991) assert that people's fundamental attitudes, values and beliefs are all products of social interaction and that learning and change take place socially. Another author writes, "In contrast to psychological and behavioral understandings of learning, socio-cultural models posit that learning is not something that…is just inside the head, but instead is shaped by the context, culture, and tools in the learning situation (Hansman, 2001, p 45). Brown and Duguid explain the significance of the individual's social context, "the tectonic social forces, always at work, within which and against which individuals configure their identity. These create not only grounds for reception, but grounds for interpretation, judgment, and understanding" (Brown & Duguid, 2000, p. 138-9). Thus, the parent's social context shapes her attitude toward parenthood, what information she seeks, how she processes the information, and how she applies it in practice.

Learning to be a parent within the family

First and foremost, it is the interaction with one's child—with his or her individual temperament and needs—that teaches one how to be a parent (Galinsky, 1987; Brazelton, 1992). Galinsky states, "…it is the child who by his or her growth leads the parent from one stage to the next" (Galinsky, 1987, p. 48). As parents get to know their baby—what seems to work and doesn't work—they also get to know themselves better. Parents discover their

abilities and their uncertainties, fears, and vulnerabilities, which can motivate them to learn more and grow.

The birth of a child, especially the first child, affects everyone else and every other relationship within the family (Galinsky, 1987; Brazelton, 1992; Cowan et al., 1998). *Family Systems Theory* defines the family as a group of individuals who interact in complex ways including interdependence, boundaries, levels of hierarchy, and patterns of communication and interaction (Cowan et al., 1998).

In two-parent families, having a baby affects the couple's relationship as the two-person equilibrium shifts to a three-person relationship. Parents experience new responsibilities and feelings; and spouses or partners in the same family can have very different reactions. Partners need to communicate more—negotiating the details of their baby's care (e.g., feedings, sleep arrangements, expenses), asking for help, and clarifying misunderstandings (Cowan et al., 1998; Galinsky, 1987). When there are other siblings in the family, the new baby brings changes to them as well. In addition to their own reactions to the baby, they are typically affected by their parents' shift in expectations of their behavior as a big brother or sister. Siblings can experience the added closeness as well as sibling rivalry (Galinsky, 1987; Brazelton, 1992; Cowan et al., 1998).

Having a baby can also affect the new parent's relationship with his or her own parents. Parents often regard new parenthood as an opportunity to finally understand and assume a similar footing with their own parents. Most new parents go through a process of reflecting on their own parents as their primary role models. They think about how they want to be a similar or different parent, and what kind of relationship they want their child to have with his grandparents. New mothers can benefit greatly from having support and a positive role model for parenting, typically from their own mother (Galinsky, 1987; Brazelton, 1992; Cowan et al, 1998). This support can be especially important for teen parents. In many cultures, it is both desired and expected for grandparents and extended family members to help care for the child (Powell et al, 1990). However, parents and grandparents can both support each other and experience conflicts over different approaches to child-rearing issues such as feeding, sleeping, discipline, and toilet-training (Galinsky, 1987; Brazelton, 1992; Cowan et al., 1998). Child-rearing difficulties can arise from underlying conflicts in the relationship, family members' immigration to a new country, acculturation factors, and changes in the professional experts' recommendations over time. Galinsky explains, "The push-pull tension prevails in this relationship, too: help me, but don't interfere; take care of me, but understand that this is my child and I have to make my own mistakes" (Galinsky, 1987, p. 90).

Learning to be a parent within the community

Becoming a parent can create a greater affinity with other parents and caregivers in the community. Galinsky states, "In the first years of parenthood, friendships can be like lifelines out into the world" (Galinsky, 1987, p. 109). She adds, "Other influences impinge on the parents from conception on: the treatment by doctors, nurses, employers, neighbors, friends, strangers. Parents are affected by everything—from the weather to the state of the economy to the current, topical social attitudes. All are mainlined into parents' perceptions as they shape and reshape their images of themselves as parents" (Galinsky, 1987, p. 114).

Brown and Duguid (2000) distinguish between "learning about" or "knowing that" vs. "learning to be" or "knowing how"—the first involves acquiring information; the second requires practice. Lave and Wenger (1993) discuss how learning a practice involves becoming part of a "community of practice," a group of people who share a common purpose and desire to learn what each other knows. These "communities" can be informal (e.g., a grandmother helping a new mother) or formal (e.g., a parent education and support group). The cognitive science principle of "social proof" states that people regard a behavior pattern more positively if they have seen others doing it, and they are more motivated to follow the example of others with whom they share a common group identity (Cialdini, 2001). Brown and Duguid (2000) add, "In learning to be, in becoming a member of a community of practice, an individual is developing a social identity. In turn, the identity under development shapes what that person comes to know, how he or she assimilates knowledge and information" (Brown & Duguid, 2000, p. 138). Thus, becoming a parent initiates an adult into the world of parenthood and all of its learning experiences.

How community systems can support parents

Many scientific disciplines are beginning to recognize the important interactions of parents and their communities. For example, studies show that neighborhoods can influence teen pregnancies, prenatal care, and low birth weight; and community-based systems can provide significant support to help new parents follow healthy and effective parenting practices (O'Campo et al., 1997; Brooks-Gunn et al., 1993).

Many parenting education interventions are implemented through a "point of care" approach, where parenting education is provided at the site of health care, social services or child care. Unfortunately, this approach may not take into consideration the parent's social context. For example, if the baby's father is unable to attend the pediatric clinic visit in which guidance on child development is offered, the family might miss an important opportunity to establish a consistent approach to handling difficult parenting issues such as infant crying, toddler discipline, and toilet training.

The *Social-Ecological Model* (Stokals, 2000) describes how an individual's behaviors are influenced by many different factors: intrapersonal characteristics (e.g., knowledge, attitudes and experiences), interpersonal factors (e.g., relationships with family, friends and co-workers), community organizations (e.g., health care providers, schools and workplaces), and policies (e.g., local, state and national laws) (Glanz et al., 1997). Educational interventions can be most effective when they are implemented at these multiple levels, and take into consideration differences related to culture, language, literacy, and disability (Institute of Medicine, 2001; Neuhauser & Kreps, 2003).

Social Cognitive Theory (Bandura, 1986) explains the individual's awareness of social norms and how positive and negative reinforcements from the family and community can increase the likelihood of the desired behavior to continue over time (Glanz et al., 1997; DiClemente, 2002). For example, positive comments from family members about a mother breastfeeding, and negative comments from a health care provider about a father smoking can help promote healthy behavior. The *Social Networks and Social Support* models (Berkman & Glass, 2000) further explain how having a "helping relationship" can support people to choose healthy behaviors. For example, a positive change is more likely when a parent receives breastfeeding promotion or smoking cessation messages from a family member, friend, home visitor, or

nurse who has many personal similarities, is emotionally close and interacts frequently with them (Glanz et al., 1997). Within some cultures, parents tend to rely more on the extended family rather than professionals for information and support (Sabogal et al., 1987; Guendelman et al., 2002). Different types of social support can be helpful: practical assistance, expressions of caring, information, and helpful feedback (Berkman & Glass, 2000; Glanz et al., 1997; Institute of Medicine, 2001).

The *Diffusion of Innovations Theory* (Rogers, 1995, Glanz et al., 1997) analyzes the adoption of innovations, i.e., the process of social change. An innovation is a new idea or practice, for example, putting an infant to sleep on his back. Diffusion is the process by which an innovation is communicated over time among the members of a social system, for example, through mass media, communication through informal social networks, and/or educational materials. Various perceived attributes of the innovation influence how quickly it is adopted: (1) relative advantage—the degree to which an innovation is perceived as better than the idea it supercedes, (2) compatibility—the degree to which an innovation is perceived as being consistent with the existing values, experiences, and needs of potential adopters, (3) complexity—the degree to which an innovation is considered easy to understand and use, (4) trialability—the degree to which an innovation may be experimented with, (5) observability—how visible the results of innovation are, and (6) communication channel—how the messages get from one individual to another, including mass-media channels and interpersonal channels (Rogers, 1995).

Communication theory posits that educational messages are most effective when mass media and interpersonal approaches are used synergistically (Hornik, 2002). In the field of parenting education, mass media (such as television and radio) can create a general awareness and motivation about parenting issues; then, interventions that reach parents on a more personal level (e.g., through health care, social service or child care providers) can help engage them in following healthy and effective parenting practices.

Studies of Parenting Education Interventions: Impact on Parents' Knowledge

Program evaluations have identified key factors that promote effective parenting education. In this section, we summarize central findings from studies of parenting education programs in this country.

Most experts agree that the evaluations of parenting education interventions have shown "modest" or "mixed" results (Brooks-Gunn 2000, Gomby 1999; Olds, 1999; Medway, 1989; Todres, 1993). Due to the complex nature of parenting, it is challenging for educational programs to have a measurable impact on parents' knowledge, attitudes and practices, as well as on child health and development outcomes. In his review of parenting education programs, Carter (1996) commented, "Parenting education is long on promise and, so far, short on proof." However, many researchers and policy makers believe that if modest outcomes are extended to whole populations, their impact can be highly significant. This is particularly true for interventions that affect pregnant women and young children, which can have lifelong positive effects on pregnancy outcomes, child growth and development, school readiness, and adult health and productivity (Shonkoff et al., 2000; Shore, 1997).

In spite of the widespread impetus to provide services for parents in need, relatively limited resources have been devoted to program evaluation (Carter, 1996). With these limitations in mind, we have conducted a summary review of studies of parenting education interventions and their impact on parents' knowledge. The following two sections describe and compare two major kinds of parenting interventions: *"comprehensive" interventions,* which offer parents education and a variety of services and resources over time; and *materials-based interventions,* which provide parents educational materials with a brief orientation, but no additional support services.

Comprehensive Interventions

Some parenting education programs invest considerable resources in assisting families, offering parents a variety of services and educational materials over time. These can be considered "comprehensive" interventions. Many of these comprehensive intervention programs have been evaluated to determine their effectiveness on parenting knowledge and practices, and child outcomes (Brooks-Gunn, 2000; Gomby, 1999; Olds, 1999).

Layzer et al. (2001) conducted a *meta-analysis*[1] synthesizing the results of 665 studies of 260 parenting programs. These parenting programs served diverse populations across the United States. This extensive study is the best source to date on the outcomes of parenting education programs. This study summarized below.

Description of the educational interventions

Table 1 describes the key characteristics of the 260 parenting programs in the studies reviewed by Layzer et al. (2001):

[1] Meta-analysis is a statistical method used to aggregate and compare results across studies.

Table 1: Characteristics of Parenting Programs in the Study by Layzer et al. (2001)

Characteristic	Description of Programs
Size of Program	73% single site 27% multi-site
Program Providers	87% used professional staff (e.g., social workers, counselors, nurses, doctors, teachers, child development specialists) 9% used non-professional staff (with college degree but without specialized training before being hired) 30% used paraprofessional staff (without a degree or specialized training before being hired)
Program Clients	88% targeted at-risk families (e.g., poverty, substance abuse, child neglect/abuse, low birth weight) 78% targeted families from pregnancy to 5 years of age
Type of Services	98% parenting education 59% group classes for parents 44% case management, counseling or referrals to services 29% health care for parents and children 28% group activities for parents and children 19% group early childhood education services for children 10% basic adult education, literacy or job training for parents
Location of Services	62% home visits 29% hospitals or clinics 25% schools 16% community centers 9% college or university 6% public or private agency
Number of Hours and Duration of Services	*Hours:* -Average 60 hours total parent education. 64% of programs provided 40 hours or less instruction; 35% provided over 40 hours. -One-half of programs provided less than 5 hours parent education/month; one-half provided 5 hours or more per month. *Duration:* Average 15 months of services. 59% of families received less than 1 year of services; 35% received 1-4 years services
Cost of Services	This study did not report program costs.*

* Other sources have estimated the costs of similar services from $1,600- $16,000/family per year (St. Pierre, 1997).

Results of the studies

The parenting programs in this study were found to have "small but statistically significant average effects" in all nine domains studied, including parent outcomes (e.g., knowledge, attitudes, practices, and family functioning) and child outcomes (e.g., development, health, and safety). Within each outcome domain, *effect sizes* were calculated to assess the impact of the interventions and compare the outcomes across the different studies.[2]

Of the 665 studies, 108 studies measured changes in parenting knowledge and attitudes—these are the studies most relevant to this review. The researchers calculated effect sizes for 108 studies with "end-of-treatment" outcomes (i.e., *short-term* outcomes, immediately after the intervention); and 22 studies with "follow-up" outcomes (i.e., *long-term* outcomes). The timing of the long-term follow-up ranged from a few months to 9 years after the intervention, with two-thirds of the outcomes measured at less than 2 years follow-up.

Short-term results: For the 108 parenting education studies with short-term outcomes on parenting knowledge and attitudes, 28% had negative effect sizes; 28% had effect sizes from 0 to 0.20; 28% had effect sizes from 0.20 to 0.50; and 16% had effect sizes above 0.50 **(See Figure 1).** *The average effect size for short-term outcomes on parenting knowledge and attitudes was 0.23 (with a 95% confidence interval of 0.18 to 0.28).*

Long-term results: *For the 22 parenting education studies with long-term outcomes on parenting knowledge and attitudes, the average effect size was 0.27 (with a 95% confidence interval of 0.17 to 0.38).*

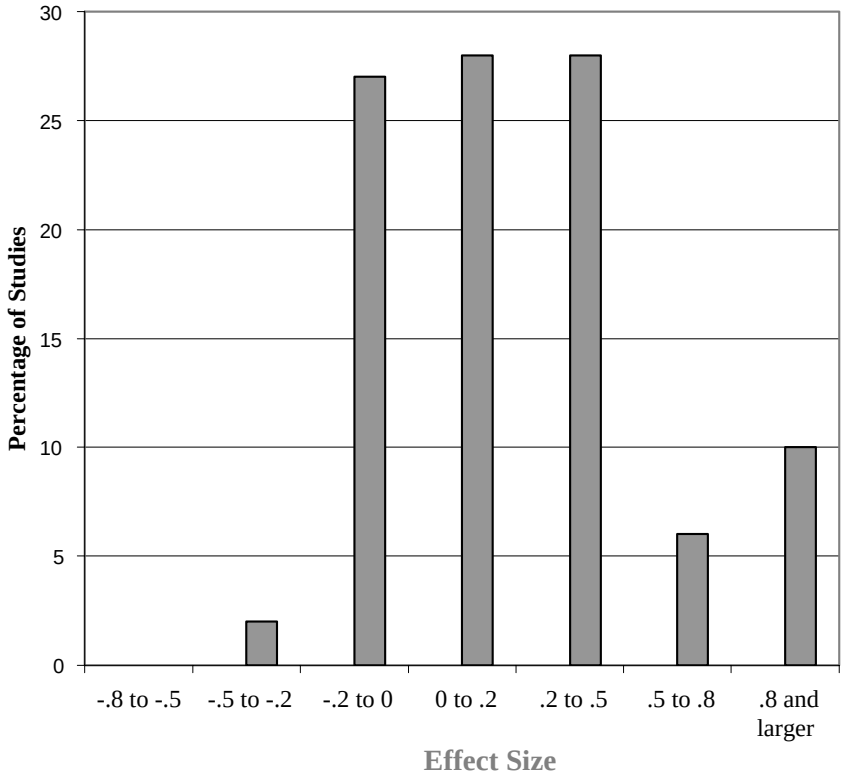
This study also analyzed features of the interventions that were associated with positive outcomes. The program feature associated with greater positive effects on parents' knowledge and attitudes was parent-to-parent peer support.

Limitations of the studies

Overall, the methodological quality of the individual studies varied greatly. Not all studies reported reliability and validity information for the outcome measures. The lack of standardization within each program (e.g., the type and quantity of services parents received) and across programs (i.e., the qualifications and training of providers, and the types of services offered) made programs challenging to compare. Because parent education is often embedded in programs that provide other services as well (such as health care, social services, and child care), it can be difficult to isolate the effects of parenting education from the effects of the other program components.

[2] Effect size is typically calculated as the difference between the mean values of two groups, divided by the standard deviation of the combined groups.

Figure 1: Short-term Effect Sizes for Parenting Education Programs' Impact on Parenting Knowledge (from Layzer et al., 2001)



Materials-based Interventions

Another basic type of parenting education intervention consists of providing parents with educational materials—such as videotapes and written brochures—with a brief in-person orientation. These materials-based interventions are generally simpler, focus on single outcomes, and require fewer resources and staff time than the more comprehensive parenting programs described above.

Many experts question whether materials-based interventions can be effective. While materials-based education for adults on adult health issues (e.g., asthma, smoking cessation, and HIV/AIDS prevention) has generally shown disappointing outcomes (Silvestri & Flay, 1989; Walpole et al., 1997; Witte et al., 1998; Gibson et al., 2002), education for parents on child health and development has been more successful. Summarized below is a review we completed of 19 studies of materials-based parenting education. It is important to note that,

unlike the preceding meta-analysis of parenting education studies (Layzer et al., 2001), this is a simple descriptive analysis of a small number of available studies.

We began our search for relevant studies by identifying published articles through PubMed and PsychInfo databases from 1966-2002. Each identified article was then reviewed for references to other pertinent articles. We then selected studies for our review based on the following inclusion criteria:

- the intervention related to parenting issues of newborns, infants, or toddlers;
- the educational intervention consisted of giving or showing materials and/or very limited discussion/ counseling less than 15 minutes;
- the study had a control group, a comparison group or a pre-post assessment; and
- the study measured a knowledge, attitude, or behavior outcome.

Description of the materials-based educational interventions

The 19 studies were conducted during the past 20 years. Both parents and parents-to-be were included in these studies (See Appendix B). **Table 2** lists the key features of the materials-based interventions in these studies:

Table 2: Characteristics of Materials-based Educational Interventions

Characteristic	Description of Programs
Program Providers	Materials were usually provided by a doctor, nurse or health educator.
Recipients of Materials	Participants were pregnant mothers and/or their partners, or parents of infants/toddlers. Recipients were from a range of socio-economic backgrounds.
Type of Materials	The programs provided parents educational materials on: child development and parenting, child health (e.g., immunizations, car seat safety, sun safety, child-proofing, and medications), child nutrition (including breastfeeding and starting solid foods), and literacy promotion.
Location of Program	Materials were usually provided at a prenatal or pediatric health care site.
Duration of Activities	Parents typically received less than 15 minutes of instruction about the materials, and were generally allowed to take the materials home. (This review did not include interventions with parenting classes.)
Cost of Services	The studies did not report the program costs.*

* We estimate that the cost for the interventions was generally less than $100/family, including materials and staff time.

Evaluation methods

These were all experimental, quasi-experimental, or pre/post-test studies. Sixteen out of the 19 studies had an intervention group and a control or comparison group that did not receive the intervention; and the remaining three studies compared two different educational interventions, i.e., a lower-intensity intervention (usually written materials only) vs. a higher-intensity intervention (written materials plus an extended discussion and/or a video). Study sample sizes ranged from 59 to nearly 10,000 participants, divided between intervention and comparison groups. The outcomes studied included changes in parents' knowledge, attitudes and practices; and child health and development. All of the studies used a baseline and follow-up questionnaire. Follow-up periods ranged from immediately afterwards to two years after the intervention.

Results of the studies

Most (17 out of 19) of these materials-based parenting education interventions showed positive outcomes on parents' knowledge, attitudes or practices.

Videotapes appeared to be the most effective educational format in these studies. All eight of the studies that used videos demonstrated significant positive results (Black & Teti, 1997; Black et. al., 2001; Dunn et al., 1998; Wheeler et al., 2001; Hughs, 1993; Bjornson, Scheifeles & Gold, 1991; Brown, Yando & Rainforth, 1999; Kelly et al., 2003). In the seven videotape studies that had a control or comparison group, the intervention group using videos showed better outcomes than the control. In the eighth videotape study, Dunn et al. (1998) compared the use of a videotape versus a written handout to improve parents' knowledge about childhood immunizations. While both interventions showed positive results, the videotape was significantly more effective than the handout.

Written materials were also successful in most of the studies. Nine out of the eleven interventions that used written materials demonstrated significant positive results for the intervention group (Bolognia et al., 1991; Hoyer & Horvat, 2000; Lowe, Balanda & Clare, 1998; High et al., 1998; High et al., 2000; Goebel, Copps & Sulayman, 1984; O'Neill-Murphy, Kiebman & Barnsteiner, 2001; Cooper, Widness & O'Shea, 1988; Golova et al., 1999).

One of the studies, Brown et al. (1999), is notable for its positive outcomes and also for its similarity with the *Kit for New Parents* intervention. Brown and colleagues studied the effects of the My Baby U.—a series of eight educational videos and booklets on infant development. These educational materials were given to families prenatally and at six additional time points over their child's first year of life. The study followed the knowledge, attitudes and practices of 116 families in the intervention group compared with 135 families in the control group who did not receive the materials. The intervention group demonstrated significant increases in parents' knowledge and confidence about child development, as well as fewer severe illnesses among the infants. Several factors may have contributed to the success of this intervention, including parents' openness to education in the prenatal and infant periods, the synergy between the video and written modes of education, and the reinforcement of the intervention during multiple time points over the baby's first year.

Limitations of the studies

This descriptive review encompassed a relatively small number of materials-based parenting interventions. Overall, the methodological quality of the studies varied. Many of the studies had very small sample sizes. Not all studies reported reliability and validity information for the outcome measures. Some of the studies provided insufficient information to calculate effect sizes and facilitate a comparison of the results of the interventions across studies. Unlike the meta-analysis of intensive parenting education studies (Layzer et al., 2001), as yet there is no meta-analysis of materials-based parenting interventions.

Summary of Parenting Education Principles, Models, Research and Trends

Because of the critical importance of giving children the best start during their early years, there is a growing recognition that effective parenting education should be one of our most important societal goals. How best to achieve this goal has been an area of intense examination. As a result of research findings and advances in theory and program development, parenting education interventions have evolved considerably during the past 50 years. Initially parenting education consisted of generic advice delivered by providers to parents, especially mothers. Over time, program evaluations and new theoretical models have improved our understanding of how parents learn and make changes. Three main principles have emerged to guide parenting education: build on parents' needs and interests, tailor education to engage and motivate parents, and create interventions that support parents over time within their social environments. Increasingly, parenting education has become more comprehensive, more learner-oriented, and more supportive of family relationships and cultural norms.

To date, evaluations of parenting education interventions have shown modest results. However, extending these interventions to large populations could have a significant positive impact on the well-being of children and families. This review indicates that parents' knowledge can be improved by low-cost, culturally-appropriate parenting education materials—particularly those that use multi-media formats, are distributed in-person by a provider, and include reinforcement over time—such as the *Kit for New Parents*.

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Appendix A:
The Universe of Parent Education

Education	**Multiple and Complex Needs**	**Normative**	**Health Care**
Literacy Programs Life Skills Programs School-Linked Programs Parent Involvement Preschool/Child Care Head Start Readiness Programs	Divorce and Separation Incarceration Teen Pregnancy/Parenting Abuse/Neglect Anti-violence Substance Abuse Family Preservation Foster Care Adoption	Entertainment and Play Museums Recreation Sports Educational Classes Referral Libraries Newsletters/Magazines Electronic Media Safety Programs/Services Product Evaluation Religious Education	Hospitals HMOs Departments of Public Health Maternal and Child Health Agencies MD's and Health Care Professionals Private Health Agencies Perinatal Programs Women's Health Immunization Nutrition Childbirth Education Lactation Groups
Special Needs	**Work**	**Advocacy**	**Research**
Disabilities Diseases Developmental Delays Special Education Occupational Therapy	Employee Assistance Support Services Educational Programs Training for Management Family Leave Child care Flextime Welfare to Work Programs Job Training G.E.D.	Public Education Training and Empowerment Lobbying	Colleges and Universities Research Centers Authors and Individuals

From Zepeda, M & Morales, A. (2001). *Supporting Parents Through Parent Education*. UCLA Center for Healthier Children, Families and Communities. Adapted from Carter, N. (1996). *See how we grow: A report on the status of parent education in the US.* Pew Charitable Trust.

Appendix B:
Summary Table of Materials-Based Parenting Interventions

Study; Date	Topic of Intervention	Type of Intervention	Sample Size	Statistic Reported	Key Results
Brown et al; 1999	General Parent Education	MBU Video Course- 8 videos with booklets received appropriate videos at four points during child's first year	Control – 135 Intervention - 116	KIDS Scale- Mean scores	Increased knowledge and confidence as well as significant differences in health related behaviors for intervention group
Hughs; 1993	General Parent Education	1. Videotape 2. Videotape plus one on one counseling	Control- 30 1. Intervention- 30 2. Intervention -30	Percentage – Knowledge	Mothers' knowledge was lowest for control group, higher for intervention, and then highest for intervention plus group.
Bjornson; 1991	Child Health- Immunization	1. Oral Presentation 2. Video Presentation	1. Intervention- 128 2. Intervention- 99	Mean Scores	Both interventions were equally effective. Both groups had higher knowledge scores at follow-up
Dunn et al; 1998	Child Health- Immunization	1. Vaccine Info Sheet (VIS) 2. Videotape plus VIS	1. Intervention –35 2. Intervention - 38	Mean Scores	Both interventions increased knowledge at follow-up.
Oeffinger et al; 1992	Child Health- Immunization	Patient education handout	Control- 122 Intervention- 116	Percentages	No statistically significant differences.
Zahr et al; 1989	Child Health - Immunization, diet, vitamins	1. Written materials 2. Interactive discussion	Control- 56 1. Intervention -48 2. Intervention- 47	Mean Percentages Correct	No statistically significant differences at follow-up. Looking at compliance with prescribed regimen and not knowledge

Study; Date	Topic of Intervention	Type of Intervention	Sample Size	Statistic Reported	Key Results
Bolognia et al; 1991	Child Health- Sun Protection	Low- sheet of guidelines/instructions High-low plus sunscreen/umbrellas	Control-85 Low Intervention- 96 High Intervention-94	Percentage Difference	Both interventions lowered amount of time spent in sun; also lowered amount of unprotected time in sun
Cooper et al; 1988	Child Health-Poisoning	Written instructions	Control- 5264 Intervention- 4484	Mean Scores	Intervention homes significantly more child safe than control homes
Goebel et al; 1984	Child Health- Car Seat Safety	Written materials/slide presentation and limited counseling	Control- 92 Intervention- 90	Percentage Difference	Intervention group had an increase in percentage of mothers who placed infant in approved car seat
Kelly, et al; 2003	Child Health-Poisoning	Videotape	Control - 144 Intervention- 145	Mean Difference	Intervention group showed an increase in knowledge about the poison control center and were more confident in knowing what to do in an emergency
Kanellis et al; 1997	Child Health- Dental	Audiotape	Control- 60 Intervention- 60	Mean Scores	Significant changes in knowledge and attitude
O'Neill et al; 2001	Child Health- Fever	1. Written materials 2. Interactive fever education	1. Intervention - 43 2. Intervention - 44	Percentage Difference	Both intervention groups had lower anxiety and increased knowledge about fever at follow-up
Wheeler et al; 2001	Child Health-Antibiotic use	Videotape	Control- 270 Intervention- 279	Percentage Difference	Intervention changed attitudes and made less likely to seek antibiotics for viral infections than control
Black et al; 1997	Infant Feeding-Mealtime Communication	Videotape	Control- 33 Intervention- 26	Mean Scores	Intervention mothers were more involved with infant; And reported more favorable attitudes than control group
Black et al; 2001	Infant Feeding	Videotape	Control – 63 Intervention – 58	Odds ratios	Intervention group members were more likely to report accurate WIC messages and were likely to start feeding their infant complementary food later
Hoyer et al; 2000	Infant Feeding-Breastfeeding	Written instructions and limited individual counseling	Control-881 Intervention- 203	Percentage Difference	Intervention group weaned slower than control group

Study; Date	Topic of Intervention	Type of Intervention	Sample Size	Statistic Reported	Key Results
Golova et al; 1999	Literacy Promotion	Written materials and a baby book	Control- 70 Intervention- 63	Means	Intervention group more likely to read books with infants and have more books in home
High et al; 1998	Literacy Promotion	Written materials and 2 baby books	Control- 51 Intervention- 100	Percentages Odds ratios	Intervention group more likely to have a bedtime routine with reading and scored higher on child-centered literacy orientation
High et al; 2000	Literacy Promotion	Written materials and a baby book	Control- 99 Intervention- 106	Mean Scores	Intervention families read more with toddlers; vocabulary scores were higher in intervention toddlers